

WHAT IS CLAIMED IS:

1. A dry-cleaning machine for sequentially performing:
 - a washing process for washing laundry articles contained in a washing/drying tub with a solvent;
 - 5 an extracting process for extracting the solvent from the laundry articles; and
 - a recovering and drying process for forming an air-circulating passage, for producing a circulation of air through the air-circulating passage, and for supplying hot air into the washing/drying tub and cooling the air exiting from the washing/drying tub to liquefy, condense and recover a gasified solvent contained in the air while the air is circulating
 - 10 through the air-circulating passage,
 - comprising:
 - a) a water repellent dispenser for dispensing a water repellent into the washing/drying tub;
 - b) a commanding device for entering a command for optionally adding a
 - 15 water-repellent finishing process in which the water repellent is dispensed by the water repellent dispenser; and
 - c) an operation controller, operating in response to the command made by the commanding device, for adding the water-repellent finishing process between the extracting process and the drying and recovering process, and for performing a heating control whereby
 - 20 the hot air supplied into the washing/drying tub during the recovering and drying process is made to have a smaller amount of heat when the water-repellent finishing process is added.
2. The dry-cleaning machine according to claim 1, further comprising:
 - a first temperature detector for detecting a temperature of the air at an inlet port of the
 - 25 washing/drying tub; and

a second temperature detector for detecting a temperature of the air at an outlet port of the washing/drying tub,

and the operation controller performs the heating control so that a difference between the two temperatures detected by the first and second temperature detectors is maintained equal to or less than a predetermined value, where the predetermined value is set smaller when the water-repellent finishing process is performed than when the water-repellent finishing process is skipped.

3. A dry-cleaning machine, including:

10 a drying tub for containing laundry articles washed with a solvent; and

a duct, connected to the drying tub, for forming an air-circulating passage through which hot air flows into and exits from the drying tub, and in which the air exiting from the drying tub is cooled to liquefy and condense a gasified solvent contained in the air and to recover the solvent,

15 comprising:

a) a cooler for cooling the air exiting from the drying tub to condense and liquefy the solvent contained in the air within the duct;

b) an exhaust port located downstream of the cooler, which port connects the inside and the outside of the duct;

20 c) a sluice valve, located in the duct at a position downstream of the exhaust port, for opening and closing the duct;

d) an intake port having an opening and closing mechanism, which port connects the inside and the outside of the duct at a position downstream of the sluice valve; and

e) a heater located within the duct at a position downstream of the intake port and upstream of the drying tub,

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whereby the cooler is activated to recover the solvent during a part or entirety of an exhausting and drying period in which the intake port is opened to introduce ambient air into the duct while a part or entirety of the air exiting from the drying tub is exhausted through the exhaust port to the outside.

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4. The dry-cleaning machine according to claim 3, wherein the dry-cleaning machine has an exhaust valve for opening and closing the exhaust port, and the exhaust valve includes an explosion relief section that is pushed open and outward by a gas pressure in the duct if the gas pressure rapidly increases.

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5. A dry-cleaning machine for performing a drying process whereby hot air is supplied into a drying tub containing laundry articles washed with a solvent, and an air exiting from the drying tub is cooled to liquefy, condense and recover a gasified solvent contained in the air, comprising:

15 a water separation unit for removing water from a mixture of the liquefied and condensed solvent and the water to recover the solvent with a high level of purity, where a coalescer type of filter is used as the water separation unit.

20 6. The dry-cleaning machine according to claim 5, wherein the water separation unit comprises:

a tank for storing the mixture, having an inlet port located in its upper part for introducing the mixture;

a filter member immersed in the mixture stored in the tank, where the solvent is stored in a solvent storage chamber defined on one side of the filter member opposite to the
25 mixture, and the filter member allows only the solvent contained in the mixture to pass

through into the solvent storage chamber;

a solvent recovery pipe with its upper end located in the solvent storage chamber;

and

a drainage pipe connected to a bottom part of the tank, including:

5 a vertical part for bringing the water from the tank to a level higher than the bottom part of the tank, and

a horizontal part located downstream of the vertical part, where the highest point within the horizontal part is lower than the upper end of the solvent recovery pipe.

10 7. The dry-cleaning machine according to claim 6, wherein the solvent is a silicone solvent, and a difference in level between the horizontal part of the drainage pipe and the upper end of the solvent recovery pipe is determined corresponding to a difference in specific gravity between the silicone solvent and the water.

15 8. The dry-cleaning machine according to claim 7, wherein the horizontal part of the drainage pipe is provided with a hole leading to an ambient air.

9. The dry-cleaning machine according to claim 8, wherein the hole is connected to the upper part of the tank by a vent pipe.

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